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Indian Standard

SPECIFICATION FOR BOBBINS AND PIRNS USED IN TEXTILE MILLS

PART 2 WOODEN WARP BOBBINS FOR RABBETH SPINDLES

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MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Gr 3 *March* 1984

AMENDMENT NO 1 SEPTEMBER 1989

TO

IS : 9337 (Part 2) - 1983 SPECIFICATION FOR BOBBINS AND PIRNS USED IN TEXTILE MILLS

PART 2 WOODEN WARP BOBBINS FOR RABBETH SPINDLES

(*Clause* **2.4**) — Substitute the following for the existing clause:

'**2.4 Shield** — The shield at bottom, if prescribed by the buyer, shall be rigidly fixed and also punched (at equal distance) at least at four places.'

(TDC 30)

Printed at New India Printing Press, Khurja, India

IS : 9337 (Part 2) - 1983
(Superseding IS : 1724-1971)

Indian Standard

SPECIFICATION FOR BOBBINS AND PIRNS USED IN TEXTILE MILLS

PART 2 WOODEN WARP BOBBINS FOR RABBETH SPINDLES

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Indian Standard

SPECIFICATION FOR BOBBINS AND PIRNS USED IN TEXTILE MILLS

PART 2 WOODEN WARP BOBBINS FOR RABBETH SPINDLES

0. FOREWORD

0.1 This Indian Standard (Part 2) was adopted by the Indian Standards Institution on 2 December 1983, after the draft finalized by the Textile Mill Accessories (Other Than Jute) Sectional Committee had been approved by the Textile Division Council.

0.2 The requirements of various types of bobbins and pirns used in textile mills have been grouped together in one standard and accordingly this standard (Part 2) specifies the requirements of warp bobbins for rabbeth spindles. This standard supersedes IS : 1724-1971*. This opportunity has also been availed to modify the requirements of shield and fit and to incorporate detailed sampling plan.

0.3 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS : 2-1960†. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard (Part 2) prescribes requirements of warp bobbins for rabbeth spindles for use on ring spinning frames.

2. MANUFACTURE

2.1 General Design — The bobbins should generally be as shown in Fig. 1.

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*Specification for wooden warp bobbins for rabbeth spindles (*second revision*).

†Rules for rounding off numerical values (*revised*).

2.2 Timber — The bobbins shall be manufactured from seasoned timber (*see* IS : 1141-1973*) of any of the species listed below as agreed to between the buyer and the seller:

Trade Name	*Botanical Name*
Birch	*Betula* sp.
Haldu	*Adina cordifolia*
Kaim (kalam)	*Mitragyna parvifolia*
Maple	*Acer* sp.
Mullilam	*Zanthoxylum rehetsa* DC.
White cedar	*Dysoxylum malabaricum*

2.3 Grooves — The bobbins shall have grooves near the top and bottom; the shape and number of grooves shall however be as agreed to between the buyer and the seller.

2.4 Shield — The shield if prescribed by the buyer shall be rigidly fixed.

2.4.1 Metal shield shall be made of either tinplate having minimum thickness of 0·315 mm or sheet of any other metal with suitable anti-rust treatment, of thickness as agreed to between the buyer and the seller subject to a tolerance of ± 0·03 mm.

2.5 Finish — The bobbins should be enamelled or varnished as agreed to between the buyer and the seller. Such a finish shall be smooth.

2.6 Freedom from Defects — The bobbins should be visually free from bark pockets, checks or cracks, gum ducts, honeycombing, knots, splits and any other defect which is likely to affect the life or usefulness of the bobbins (for the description of various types of defects, *see* IS : 707-1976† and IS : 3364-1976‡).

3. REQUIREMENTS

3.1 Dimensions

3.1.1 The dimensions of bobbins shall conform to the requirements of Table 1 read with Fig. 1.

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*Code of practice for seasoning of timber (*first revision*).

†Glossary of terms applicable to timber technology and utilization (*second revision*).

‡Methods of measurement and evaluation of defects in timber (*second revision*).

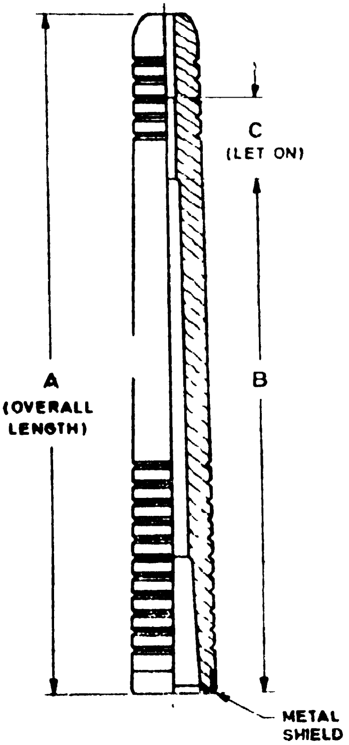

FIG. 1 A TYPICAL WOODEN WARP BOBBIN FOR RABBETH SPINDLE

3.1.2 *Fitting Dimensions*

a) The bobbin shall fit on the spindle in such a way that the distance between the bottom of the bobbin and the top of the wharve (*E* in Fig. 2) is 10 ± 2 mm.

b) When the bobbin is correctly seated on the spindle, the radial clearance between the wharve sleeve and the inside of bobbin shall be $0·25 \begin{matrix} + 0·05 \\ - 0·00 \end{matrix}$ mm.

NOTE 1 — The tolerance on the diameter of wharve sleeve on which the bobbin is to be seated shall be within ± 0·05 mm.

NOTE 2 — If agreed to between the buyer and the seller, bobbins with zero clearance at bottom may be supplied.

TABLE 1 DIMENSIONS OF BOBBINS

(*Clause* 3.1.1, and *Fig.* 1)

All dimensions in millimetres.

LIFT (1)	*A* (2)	*B* (3)	*C* (4)	NOMINAL TAPER AT LET-ON, *C* (5)
127	160	115	22	1 in 38
152	185	140		
178	210	166		
203	235	191		
229	260	207		
TOLERANCE	±1	±2	±2	—

NOTE — The dimensions of bobbins as given in the Table are recommended to be used in conjunction with spindles conforming to IS : 3698-1977*. In case an agreement between the buyer and the seller provides for dimensions other than those specified, declared dimensions shall be subject to the tolerances specified in Table 1.

*Specification for spindles for warp ring frames (*first revision*).

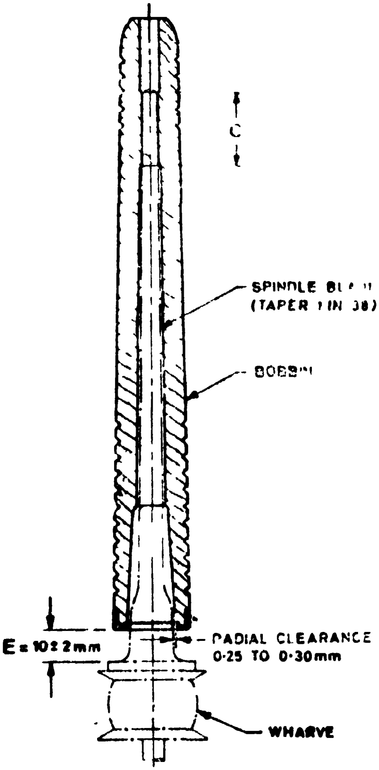
C
SPINDLE BLADE (TAPER 1 IN 38)
BOBBIN
E = 10±2mm
RADIAL CLEARANCE 0·25 TO 0·30mm
WHARVE

FIG. 2 FIT OF BOBBIN ON SPINDLE

3.2 Eccentricity — The bobbins shall be concentric. The eccentricity when determined by the method given in **A-1** shall not exceed 0·5 mm.

3.3 Tackiness — The bobbins shall not be tacky (*see* **A-2**).

3.4 Resistance to Moisture — The bobbins shall be moisture resistant, when tested by the method prescribed in **A-3**, enamelled bobbins shall not absorb more than 3·5 percent moisture and varnished bobbins not more than 7 percent.

3.5 Resistance to Steam — The enamel coating on the bobbins shall not show any sign of tackiness or cracking when exposed to steam (*see* **A-4**). (This is not applicable to varnished bobbins.)

3.6 Mass — The collective mass of 400 bobbins shall be as agreed to between the buyer and the seller subject to a tolerance of ±4 percent.

4. MARKING

4.1 Each bobbin shall be marked at a suitable place with the brand or trade-mark of the manufacturer.

4.1.1 The bobbins may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

5. PACKING

5.1 A suitable number of bobbins shall be packed in a wooden case strong enough to withstand the normal hazards of transit.

5.2 Each case of bobbins shall bear the following information:

a) Brand or trade-mark of manufacturer;

b) Surface finish of the bobbin (for example, varnished or enamelled);

c) Number of bobbins in the case; and

d) Any other information as required by the buyer.

6. SAMPLING

6.1 The quantity of bobbins manufactured from the same species of timber and of the same size supplied to a buyer against a despatch note shall constitute a lot.

6.2 The conformity of the lot to the requirements of this standard shall be determined on the basis of the tests carried out on the samples selected from it.

6.3 Unless otherwise agreed to between the buyer and the seller, the number of bobbins to be selected from the lot shall be according to Table 2. These shall be equally selected from at least 25 percent of the packages.

6.4 The number of bobbins to be tested for freedom from defects, dimension and eccentricity shall be according to col 2 of Table 2.

6.5 The number of bobbins to be tested for tackiness, resistance to moisture, resistance to steam and collective mass of 400 bobbins shall be according to col 5 of Table 2.

6.6 Criteria for Conformity — The lot shall be considered as conforming to the requirements of this standard if the following conditions are satisfied:

a) The number of bobbins failing to satisfy the requirements of freedom from defects and dimensions does not exceed the number given in col 3 of Table 2.

b) Number of bobbins failing to meet eccentricity requirement does not exceed the number given in col 4 of Table 2.

c) All the bobbins tested for requirements mentioned in **6.5** shall satisfy the requirements.

TABLE 2 SAMPLE SIZE AND CRITERIA FOR CONFORMITY

(*Clauses* 6.3 *to* 6.6)

NUMBER OF BOBBINS IN THE LOT	NON-DESTRUCTIVE TESTING			DESTRUCTIVE TESTING (NUMBER OF BOBBINS TO BE INSPECTED)
	Number of Bobbins to be Inspected	Permissible Number of Non-conforming Bobbins Except Eccentricity	Permissible Number of Non-conforming Bobbins in Case of Eccentricity	
(1)	(2)	(3)	(4)	(5)
Up to 3 000	32	3	1	5
3 001 to 10 000	50	5	2	8
10 001 and above	80	7	3	13

APPENDIX A

(*Clauses* 3.2 *to* 3.5)

METHODS OF TEST

A-1. CONCENTRICITY

A-1.1 Mount the spindle on which the bobbin is intended to work on a suitable bobbin tester. The eccentricity of the spindle shall not exceed 0·05 mm. Fit the bobbin on the spindle, revolve it slowly and determine the eccentricity of bobbin at a position 20 mm below the top of bobbin and at a position 20 mm above the bottom of the bobbin. Note the eccentricity, if any, at these two positions.

A-2. TACKINESS

A-2.1 Place a bobbin in one pan of a suitable balance, counterpoise it with masses in the second pan, and add a 2·5-kg mass. Press down the bobbin in the first pan with the thumb till the two pans are balanced. Hold the balance in that position for 1 minute and release the pressure of thumb slowly.

A-2.2 Report the bobbin to be in conformity in respect of tackiness, if:

a) it does not show any apparent tendency to stick to the thumb; and

b) the thumb impression on it, if any, can be wiped off with dry cotton.

A-3. RESISTANCE TO MOISTURE

A-3.1 Weigh a bobbin. Immerse it in water at 50°C for 1 hour, wipe, dry and weigh it again. Calculate the gain in weight and express it in percentage.

A-4. RESISTANCE TO STEAM (FOR ENAMELLED BOBBINS ONLY)

A-4.1 Take a bobbin and expose it to saturated steam over a pot of boiling water for half an hour or expose it to steam at 200 kPa (2 kgf/cm^2) for 10 minutes. Place the bobbin in one pan of a suitable balance, counterpoise with masses in the second pan, and add a 2·5-kg mass. Press down the bobbin in the first pan with the thumb till the two pans are balanced. Hold the balance in that position for 1 minute and release the pressure of thumb slowly.

A-4.2 Report the bobbin to be in conformity in respect of resistance to steam, if

a) it does not show any apparent tendency to stick to the thumb; and

b) the thumb impression on it, if any, can be wiped off with dry cotton.

INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

Quantity	*Unit*	*Symbol*
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

Quantity	*Unit*	*Symbol*
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

Quantity	*Unit*	*Symbol*	*Definition*
Force	newton	N	1 N = 1 $kg.m/s^2$
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wb/m^2
Frequency	hertz	Hz	1 Hz = 1 c/s (s^{-1})
Electric conductance	siemens	S	1 S = 1 A/V
Electromotive force	volt	V	1 V = 1 W/A
Pressure, stress	pascal	Pa	1 Pa = 1 N/M^2

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